PUBLIC WORKS PROJECT
مشـــروع الأشـغال العامة

Yemen Sustainable Fishery Development in the Red Sea and Gulf of Aden (SFISH) (P178143)

Environmental and Social Action Plan (ESAP08)

For the

Supply and Installation of Ice Factory, Cold Room, and Solar PV System

One Subproject

3 July 2024

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Abbreviation List:

CO	Carbon Monoxide
COC	Code of Conduct
ESAP	Environmental and Social Action Plan
ESF	Environmental and Social Framework
ESMF	Environmental and Social Management Framework
ESS	Environmental and Social Standards
GBV	Gender-Based Violence
GM	Grievance Mechanism
HQ	Head Quarter
IBA	Important Birds Area
IDA	International Development Association
IDPs	Internally Displaced Persons
IPC	Integrated Phase Classification
KVA	kilovolt-ampere
KW	kilowatt
LC	Local Councils
LMP	Labor Management Procedures
MSDS	Material Safety Data Sheets
NOX	Nitrous Oxide
OHS	Occupational Health and Safety
PM	Particulate Matter
PPE	Personal Protective Equipment's
PV	photovoltaic
PTW	Permit to Work system
PWP	Public Works Project
RF	Resettlement Framework
SEA	Sexual Exploitation and Abuse
SEP	Stakeholder Engagement Plan
SFISH	Sustainable Fishery Development in Red Sea and Gulf of Aden
SH	Sexual Harassment
SMEPS	Small and Micro Enterprise Promotion Service
SOX	Sulphur Oxides
TPM	Third-Party Monitoring
UNDP	United Nations Development Program
WB	World Bank
WFP	World Food Programme

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General Information of Subproject:

Table 1: General Information

Name of the Subproject:	Supply and Installation Ice Factory, Cold room and Solar PV System
Subprojects ID:	02-9-16074
Sub-project Locations	Aden Governorate
Implementation Modality	Public Contracting Modality
Sector and Type of Sub-project:	Fish Sector
Sub-project Implementer	Public Works Project (PWP)
Estimated Cost of Subproject:	$ 500,000
Estimated Cost for ESAP	$ 24,000
Implementation period	6 months
Beneficiaries	2,000 (2,000 males and no females)
Field Visit (Yes/No; Include Date; another envisioned):	Yes- July, December 2023; another is not envisioned
Was Consultation Carried out? (Yes/No):	Yes- Refer to Public Consultation Section
Implementation Modality	Moderate

Subproject Introduction and Description:

This Environmental and Social Action Plan (ESAP) has been developed with reference to an agreement with World Bank (WB) team to develop an ESAP for subprojects that were estimated of having low or moderate risks levels, and categorized as small-scale with minor, limited, and localized risks. The structure of this ESAP has been prepared and agreed with the World Bank's environmental and social risk management team to be more streamlined. It reflects the requirements of the Environmental and Social Management Framework (ESMF), Labour Management Procedures (LMP), Stakeholder Engagement Plan (SEP), and other instruments for the parent project, Sustainable Fishery Development in Red Sea and Gulf of Aden (SFISH) in accordance with the relevant requirements of the WB's Environmental and Social Framework (ESF), namely Environmental and Social Standards (ESS1) (Assessment and Management of Environmental and Social Risks and Impacts), ESS2 (Labour and Working Conditions), (ESS3) (Resource Efficiency and Pollution Prevention and Management), (ESS4) (Community Health and Safety), (ESS5) (Land Acquisition, Restrictions on Land Use and Involuntary Resettlement) and (ESS10) (Stakeholder Engagement and Information Disclosure) that were prepared and approved by the WB for the parent project, the Sustainable Fishery Development in Red Sea and Gulf of Aden.

The ongoing conflict has weakened Yemen's institutions, resulting in one of the world's worst humanitarian crises with approximately 20 million people in need of humanitarian assistance and 4 million displaced (nearly 80 per cent

of whom are women and children). An estimated 40 percent of households have lost their primary income source, contributing to an increase in poverty to 75 per cent of the population in 2019[1].

Furthermore, food insecurity which is a chronic problem in Yemen, has increased to unprecedented levels. In the first half of 2021, the Integrated Phase Classification (IPC) indicates that a total of 16.1 million people (54 per cent of the country's population) were estimated to be acutely food insecure (IPC Phase 3 and above for the population in the coastal zone), despite the presence of the ongoing humanitarian food assistance.

In response to this deepening crisis, UNDP Yemen has partnered with the World Bank's International Development Association (IDA), the Public Work Project (PWP), and Small and Micro Enterprise Promotion Service (SMEPS) to implement the new project Sustainable Fishery Development in Red Sea and Gulf of Aden (SFISH)[2]. SFISH aims to improve economic opportunities, increase food security and provide effective management of fishery production in Yemen.

The project focuses on reviving the fishery sector in selected areas while ensuring its effective management for its resilience; contributing to food and nutritional security by increasing food availability, access, and utilization in the project areas; creating sustainable income and livelihood opportunities for the Yemeni households engaged in the fishery value chain.

Developing key fishery infrastructure - particularly the cold chain to address post-harvest losses and maintaining quality for consumption and trade and related fishery value chain infrastructure - will be key activities under the project. In this ESAP, the sub-project falls under the fisheries sector and consists of supplying and installing ice factory with a capacity of 10 tons and fish cooling storage container with a capacity of 5 tons, powered by solar PV-diesel hybrid system for the Dockyard Center located in Al-Ma'ala district affiliated to Aden governorate, Yemen. The Dockyard center, currently linked to public water network which provided the landing site and Al-Ma'al district as whole with daily water supply, the public water network has been covering the landing site needs when it worked with full capacity with 42 Tons ice factory during previous years, so there will not be any impact on water resources due to new ice factory with capacity 10 Ton.

Solar Diesel hybrid system can mainly compose of one or more diesel generators, PV panels with PV string inverters, simple balance of system components, and a central controller. No batteries or battery inverters are used. The control of such systems is basically done through an intelligent controller, which measures the facility load and the load supplied by the diesel generators, and continuously control the power output from the solar inverters in a way to maintain reliability, maximize solar power production and minimize fuel consumption, while protecting the diesel generators from being operated at harmful low load levels. Using solar energy system ensures a more reliable power supply source, optimal fuel economy, lowers pollution emissions from diesel generators, prevents beneficiaries from using polluting alternative systems.

A cost analysis was conducted for the operating components of the proposed project within Dockyard Center under two scenarios. The first scenario analyzed operating the project using the diesel generator for 100% of energy needs. The second scenario analyzed operating the project using a hybrid solar-diesel system providing 70% of energy from solar PV and 30% from the diesel generator. The financial feasibility and most cost-effective option were determined for both scenarios. The analysis confirmed that the annual operating costs of the project would be more cost

[1] https://www.unrefugees.org/emergencies/yemen/

[2] https://www.pwpyemen.org/index.php/en/media-center-en/publications/category/14-sustainable-fishery-development-in-red-sea-and-gulf-of-aden-sfish

effective on utilizing solar PV and diesel generator hybrid system for power generation compared to 100% diesel generation.

The Dockyard center managed and supervised by the General Authority for Fisheries in the Gulf of Aden – Dockyard Aden was established in 1977, it is the first fish landing site in Yemen in particular and in the Arabian Peninsula in general, with an area of 30,300 square meters, and a concrete pier with a length of 52 square meters. The Dockyard center is one of the largest centers where fish production is landed and displayed, and many merchants and marketers come to buy fish products for marketing products in the local markets of the Republic of Yemen. The center suffers from a lack of storage facilities for fish preservation and cooling as well as lack of ice provision inside the center. Therefore, fishermen are forced to purchase ice from outside the center at high prices from distant locations. The proposed intervention will help alleviate the fishermen's suffering by providing ice and fish storage inside chilled rooms inside the center to preserve fish for long periods. This will support the fishermen through enabling storage and cooling of fish catch within the center at affordable rates.

The proposed intervention consists of container for ice factory and stand by generator measuring 12 meters long, 2.3 meters wide and 2.7 meters high. Another container for ice store and chill store measuring 6 meters long, 2.3 meters wide and 2.7 meters high. It will also include 240 solar PV modules with a capacity of 650 kilowatts and a 135-140 kVA Sound-Proof Diesel Generator with concrete base placed under the new generator., there is an existing fuel tank placed on concrete base and well-ventilated area.

The installation site will be fenced off to prevent unauthorized workers from entering. Two existing latrines at the center, one for men and one for women, which are allocated for landing site users the latrines are already connected to public sanitation network. The equipment will be transported to the site using transportation truck and will be off-loaded using capable crane and all control measures will be implemented through the lifting plan and safe procedures. A community committee formed from the center's management will help resolve issues, obstacles and support monitoring of installation activities. The contractor, and community committee will be responsible for system maintenance and monitoring during the operation phase and repairing any faults or damage to the system. Technician and safety training will be provided to facility personnel in all aspects of operation and maintenance of the system.

According to data collection during stakeholder engagement with fish ministry and Dockyard center staff, the total number of beneficiaries of the subproject is estimated at approximately 2,000 people, including 300 fishermen, fish sellers, and fish marketers, all of them are males as no females working in this landing site. The overall projects cost is USD 500,000. The estimated cost for implementing an Environmental and Social Action Plan (ESAP) is USD 24,000. The subproject will be implemented through the public contracting modality over an implementation period of around 6 months. Workers will be properly selected, trained on environmental and social and OHS aspects, equipped with protective boots, gloves, and other necessary PPEs. The technical resident engineer is responsible for Conducting Safeguards requirements awareness sessions to workers and beneficiaries and will conduct daily inspection and routine checks during the implementation to ensure all safety requirements are in place and PPE is used properly.

1.1. Subproject Location:

The sub-project will be implemented in the Dockyard Center located in Al-Ma'ala district affiliated to Aden governorate, Yemen. Picture below shows the proposed location of the project components in the Dockyard Centre.

Figure 1: proposed location of the project components

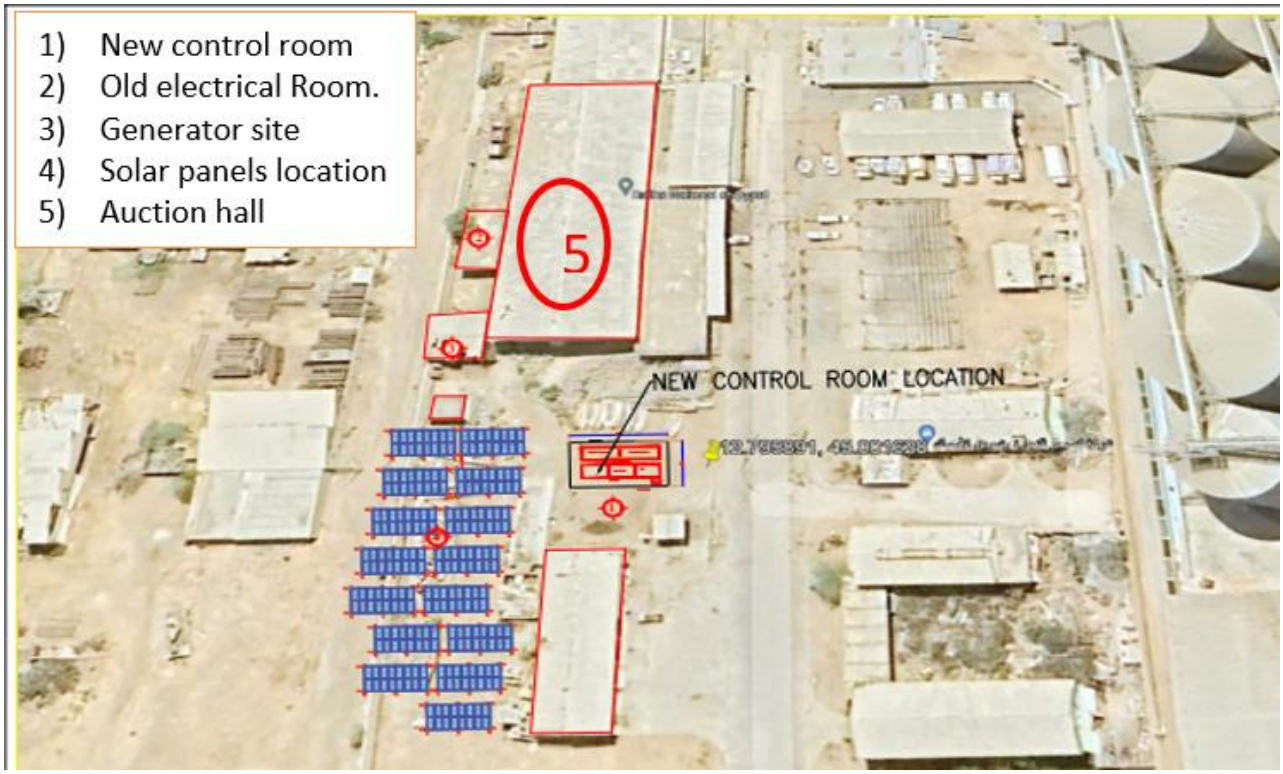

Table 2: Location

Governorate	Subproject-ID	District	N	E	Map Link	Map Photos Link
ADEN	02-9-16074	Al- Ma'ala	12.795891	45.001628	https://www.google.com/maps/place/12%C2%B047'45.2%22N+45%C2%B000'05.9%22E/@12.7958645,45.0023328,195m/data=!3m1!1e3!4m4!3m3!8m2!3d12.795891!4d45.001628?entry=ttu	https://docs.google.com/document/d/1vTBW8w_kbC7pwpBWdVLel3KESOOd3-MaOjvxrxgoqLs/edit?usp=sharing

1.2. Subproject Implementation Arrangements (Institutions and responsibilities)

1.2.1 Roles and responsibilities of implementing ESAP [3]

The roles and responsibilities of the ESAP are divided between the PWP employees such as Safeguard officer, Gender Coordinator, Consultant Engineer, Technician resident engineer, Grievance Mechanism (GM) officer, community committee, beneficiaries, and contractor and contractor's Safeguard Assistants. All will be trained on ESAP and ESF requirements to ensure implementation and monitoring of all ESF requirements and instructions. At the subarea level, there is a Safeguard Officer who will monitor the implementation of ESF requirements through reports and

[3] For more information, please see the detailed role and responsibilities follow the link https://docs.google.com/document/d/1vTBW8w_kbC7pwpBWdVLel3KESOOd3-MaOjvxrxgoqLs/edit?usp=sharing

field visits. At the HQ level, PWP has a team that monitors the implementation of ESF requirements through reports and field visits, the team carries out regular field visits and spot checks as well as following up compliance and any corrective action. Monthly, quarterly, and periodical reports will be submitted to the UNDP.

1.3. Subproject Selection Criteria Process:

The intervention sites were selected based on priorities set by the General Authority for Fisheries in the Gulf of Aden in collaboration with UNDP, through renovating damaged landing sites and enhancing the availability and quality of fish products for local consumption and export. The project will be implemented in the coastal areas considered priorities for humanitarian food security/fisheries based on the following:

- Directorates with few existing or potential partners and/or areas where needs/response gaps in sustainable fisheries production interventions have not been addressed
- Governorates/directorates that are easily accessible without security concerns from clashes
- Number of fishermen, boats, fishermen associations and cooperatives
- Number of landing sites and infrastructure condition and needs
- Private sector and potential for value chain development and market access including exports

Aden Governorate lies on the coast of the Red Sea and Gulf of Aden region, which area is prioritized due to addressing severest needs across sectors. Moreover, there is many fisheries cooperatives, associations and export agents for fisheries. Additionally, this region has unique coastal values as well as economic, historical and social values.

1.4. Subproject Activities[4]:

The subproject activities will include but not limited to the following:

- Site preparation.
- Excavation works for underground cables with a depth of 0.70 m, and foundations for hangars (steel frame) with a depth of 0.90 m.
- Backfilling from excavated material.
- Transport of all equipment to the site, on site temporary storage and security.
- Supply and install a 5-ton cold room and 10-ton ice factory with dimensions (length 6m, width 2.3m, height 2.7m) and (length 12m, width 2.3m, height 2.7m) respectively, Coolant: CFC/HCFC free (R407C)[5].
- 4 ice machines 2500kg/24 h, 2 refrigeration's system each refrigeration circuit includes (2 ICE MACHINES, 1 compressor, and 1 air condenser).
- Supply and installation of 240 solar PV modules and secure the modules on the steel structures[6] on the ground.
- Supply and installation of all cabling and electrical connections between the elements of the PV system.
- Supply, delivery, installing, and commissioning of 135- 140 KVA Sound-Proof Prime Power Diesel Generator, generator will be installed above concrete base see location which included with ice factory container in figure 1.

[4] For Typical Designs photos please follow links **https://docs.google.com/document/d/1vTBW8w_kbC7pwpBWdVLel3KESOOd3-MaOjvxrxgoqLs/edit**

[5] R-407C is an HFC-type non-azeotropic environmentally friendly refrigerant (completely free of CFCs and HCFCs).

[6] The solar panel bases and all steel members will be prefabricated off-site and installed on-site using bolts, without any welding activities.

- Design, supply and installation of a steel shed for ice factory and chill store about 6 meters high.
- Supply and installation of a metal board with the name of the project, sponsor and the GM hotlines

The equipment and tools below will be required to complete the different sub-project activities.

- **Excavation and site preparation** (Wheel loader, Dump truck, Shovels and spades, Compactors, water and waste transport trucks, and Surveying equipment).
- **Plain concrete** (Concrete mixer, Vibrators, Concrete pumps, Trowels, and Concrete buckets.
- **Steel works (**cranes, forklifts, Wrenches, Hammer, Fall protection, Hand tools).
- **Electrical works (**Multimeter, Torque wrench, Cable cutters, Fish tape, clamps, Wire strippers, Crimping tool, Screwdrivers**).**

Table 3 Information of subproject

Sub-Project ID	Subproject Name	Governorate	capacity of cold room (Ton)	capacity of ice factory (Ton)	No. PV Panels	PV Capacity KW	SP Estimated Cost US$	Estimated cost for ESAP Implementation US$[7]
02-9-16074	Supply and Installation Ice Factory, Cold room and Solar PV systems in Dockyard Center–Al-Mala'a- Aden	Aden	5	10	240	156	500,000	24,000

2. Environmental and Socioeconomic Profile of the Subproject Area:

2.1. Environmental Profile:

2.1.1. Rainfall, Climate, and Weather[8]:

[7] The estimated cost of ESMP implementation will differ from sub-project to another. Some of these expenses will be part of the subproject-contracted cost such as PPEs requirement, and providing latrines in site; other cost, staffing, consultations, and awareness materials, will be covered from the safeguarding budget that is mentioned in the ESAP.

[8] There are no weather stations in Yemen. However, the available data are collected from official pages on the Internet, such as the National Information Center.
https://yemen-nic.info/

Table 4 Rainfall, Climate, and Weather

Governorate	Climate	Annual Rainfall Average	Monthly Temperature Average	Monthly Humidity Levels
Aden	The coastal cities have a hot climate and experiences long, hot summers, and relatively warm and windy winters.[9]	22 mm	28℃	59 %

2.1.2. Air Quality and Noise:

Data on air and noise quality in Yemen in general and in the area within the sub-project is extremely scarce. No air and noise quality monitoring data for the sub-project area were found. The targeted area is located in the urban areas where are normally quiet and free of unnatural noises.

2.1.3. Water Resources

There are no groundwater aquifers in the target area. However, there is surface water available which is the Gulf of Aden Sea water, located approximately 200 meters from the project activities site. There are no predicted risks to the sea water during project implementation or operation, as the center already exists and the intervention essentially involves supply and installation only. The main source of potable water in the project area is the government water network, which is currently supplied from the desalination plant located in Al-Hiswa area which is located in Al-Buriqah district, as well as Aden city supply water from its other water fields which located in the nearby Abyan and Lahj governorates. As usually, the governorate water project in Aden has been covered needs of the Dockyard landing site for washing, ice factory with capacity 42 Ton, and toilets, so the subproject will not lead to the increase in water usage but it will be less than previous consumption.

2.1.4. Flora and Fauna (including the presence of any sensitive habitats and threatened species) and archeological sites:

The sub-project area has no areas with high biological importance, Biodiversity Areas, nor archaeological sites. According to the Bird Life website (birdlife.org), the sub-project site lies within near an Important Bird Area (IBA) (see figure 1). The project is a small-scale project and does not include large civil activities or the use of heavy equipment and is not expected to impact the nearby IBA The intervention is supply and installation, so there is no impact on the surrounding environment during implementation and operation.

9 Koeppen-Geiger, "World Maps of Köppen-Geiger Climate Classification," Koeppen-Geiger, 2019, accessed: July 15, 2020, http://koeppen-geiger.vu-wien.ac.at/present.htm

Figure 2 Project location from IBAs conservations

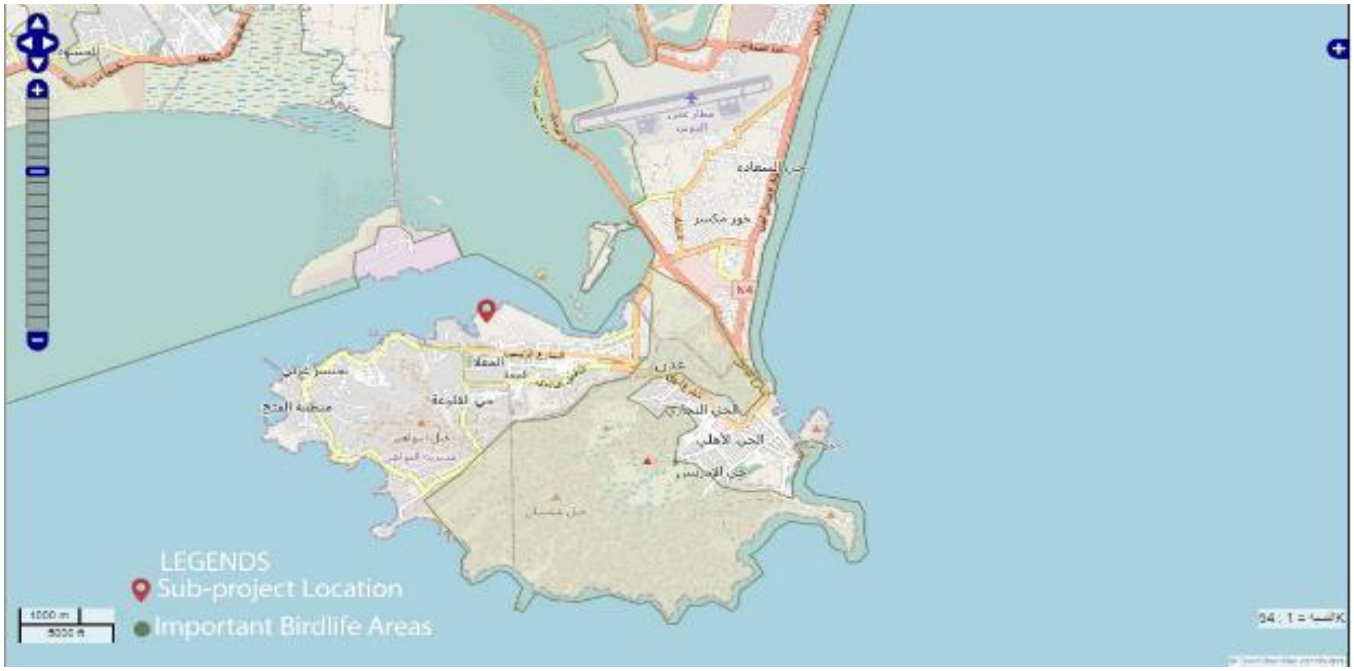

Table 5 Sensitive zones

Governorate	Subproject-ID	District	**Sensitive zones:** (Habitats, areas with high biological importance, important bird areas, important plant areas, protectorates, wildlife, and archaeological sites)
ADEN	02-9-16074	Al-Mala'a	No

2.1.5. Topography

Aden is a coastal city overlooking a large water body, which is the Gulf of Aden opening into the Indian Ocean. The terrain of Aden City slopes down from the mountain highlands to the coastal plains. These highlands appear in the southern part of Aden City represented by the highlands of Jebel Shamsan, whose highest peaks exceed 500m, and the highlands of Jebel Ahsaan and Jebel Al Mazlaqem in Lesser Aden, which are lower in elevation than Jebel Shamsan. Aden's highlands do not differ from the rest of Yemen's highlands in terms of formation, as they are of volcanic origin. Despite the mountain highlands occupying large areas of the city, their influence is weak and limited on Aden City's climate [10].

[10] https://yemen-nic.info/gover/aden/brife/

2.2. Socio-economic profile:

2.2.1. Demographic information, including targeted beneficiary population[11]

Aden governorate is in the south of the capital Sana'a about 363km away with an area of 760km2. It is an important economic and commercial center of the Republic of Yemen. Since 2015, it has been the temporary capital of the internationally recognized government of Yemen. It is located on the coast of the Gulf of Aden and consists of eight districts. It is home to Yemen's main commercial port, Aden Port, and regional and international free economic zones. The population of the governorate is about 997,308 persons, which accounts for 3% of the total population of Yemen. Aden overlooks a coastal strip 181 kilometers long, which is bordered to the east by the Al-Alam area, the village of Mukhaydir, and the village of Qaouah to the west. The number of fishermen in this geographical area is 10,210 fishermen and they own 3,120 fishing boats. These fishermen are organized under 11 fish associations.

According to the survey team, the system that will be installed at the Dockyard Center in Al-Mualla District will serve about 500 families. The total direct beneficiaries of the subproject are 2,000 individuals, including 300 fishermen, fish sellers, and fish marketers, all them are males as no females working in this landing site.

Table 6 Subprojects' Beneficiaries

Governorate	Subproject ID	Beneficiaries		
		Male	Female	Total
Aden	02-9-16074	2000	0	2,000

2.2.2 Social economic development conditions and challenges:

The city of Aden is famous for fishing and exporting it to many areas around the Republic of Yemen. The Dockyard Fish Landing Center currently suffers from a lack of storage facilities to preserve and cool fish, in addition to the lack of ice inside the center. Therefore, fishermen are forced to buy ice from outside the center at high prices and from faraway places. The proposed intervention will help alleviate the suffering of fishermen by providing ice to preserve the fish caught for long periods in the sea. This will support fishermen by enabling storage and cooling of catch within the center at affordable prices. The area suffers from high poverty rates, with approximately 65% of households living in poverty. The remaining households have limited incomes. Unemployment in the region is estimated at around 70%.

Water resources are accessed through the public water network. Government electricity and sewerage services are available in the area. All roads leading to the center are paved. Regarding education, there are two primary and secondary educational facilities located far from the project site about walking distance of 1.5 to 2.0 km. As for healthcare, there are private health centers and a hospital located far from the project location. In summary, basic infrastructure like water, electricity, roads are available while schools and hospitals are accessed from a distance.

To see the pictures of the current situation please view link in footnote[12].

[11] The source of population data is the National Information Center.
https://yemen-nic.info/

[12] https://docs.google.com/document/d/1vTBW8w_kbC7pwpBWdVLel3KESOOd3-MaOjvxrxgoqLs/edit?usp=sharing

2.2.3. Conflict and security situation within the subproject and surrounding areas

The security situation is calm, and there are no conflicts or clashes in the targeted subproject area and surrounding areas.

3. Environmental, Social, and OHS Impacts and Risks:

3.1. Environmental and Social Screening:

An environmental and social Screening has been conducted at the sub-project design stage as per the checklist form that is attached in Annex 1. Subproject may result in minor negative environmental, social and OHS impacts.

3.2. Subproject Environmental Potential Risks and Impacts:

- There are two existing latrines but not near the project site and workers may have to practice open defecation.
- Air pollution due to dust from activities and emissions risk (i.e., CO, NOX, SOX, etc.) from machinery such as loaders, water, and waste transport trucks.
- Soil and surface water contamination from accidental oil and fuel spills from equipment maintenance such as loaders, water trucks, and waste transport trucks at the work site.
- Ambient noise risks during installation and excavation works.
- Lack of waste management such as Waste produced by workers.

3.3. Subproject Social Potential Impacts and Risks:

- Child labor/forced labor risk.
- Sexual harassment, sexual exploitation and abuse.
- Discrimination against women, the elderly, youth, the poor, and persons with disabilities when selecting beneficiaries.
- Lack of workers' awareness and knowledge on respecting local community cultures, and the risks of SEA/SH and gender inequality.
- Financial exploitation of community or beneficiaries.
- Noise due to project activities and workers' activities and working at night.
- Community health and safety during the work
- Workers' dissatisfaction with the working conditions, delays in receiving pay, and lack of workers grievance mechanism
- Inaccessibility of the grievance mechanism (GM) including a GM to address SEA/SH
- Weak implementation of consultation requirements as per the Stakeholder Engagement Plan and GM monitoring and awareness; timely and effective resolution of grievances
- Absence of transparent recruitment procedures for labor requirements at the community level

3.3.1. Land Acquisition/Use/ Physical and /or economic displacement:

The sub-project is to install fish cooling and storage containers with areas of land (120 m^2) and 240 solar PV modules with areas of land (750 m^2). The lands to be used for this sub-project are within the premises of the Dockyard Fisheries Landing Center. Therefore, there is no land acquisition required for this project as the activities will take

place within the existing lands owned by the center. Moreover, PWP reached social agreements[13] with targeted communities and local authorities to implement this subproject (see link in Annex 2). In addition, the sub-project will not cause any temporary physical and/or economic displacement because the works will be carried out in an empty area (unuse area) which is located far from fish landing economic activities.

3.4. Subproject Occupational Health and Safety Risks:

- Labor injuries during construction, installation, and transferring of equipment and materials.
- Injuries of workers from falling/suspended loads and movements through obstructed line of view, dark and poorly lit areas.
- Shoulders and back muscles injuries while lifting equipment and materials in the wrong way or lifting heavy loads for long distances.
- Environmental pressures on workers (heat strokes, dust storms)
- Traffic accidents during transportation of equipment.
- Dealing with hazardous chemicals such as cement which may cause skin and eye irritation
- Mechanical and electrical injuries and shocks from bad handling of tools and/or using improper tools or defective tools that may cause injury to workers.
- Dust, sand, or small parts volatilize during work.
- Risks on workers ears while performing work with high noise emissions
- Risks of slipping and tripping.
- Falling from height (> 3m)
- Falling in excavated zones
- Electricity shocks
- Falling loads on workers during lifting activities

3.5. Risks from operation and maintenance phase:

- Lack of maintenance and disfunction of PV system.
- Weak management of community complaints and dissatisfaction .
- Soil contamination from diesel leaks from the generator or chemical storage area.
- Risks of fire from generators
- OHS, environmental and social risks while performing maintenance works including physical injuries, electrical risks, community health and safety, soil and surface water contamination, lack of waste management, dust, and ambient noise emissions during maintenance works.

[13] The social agreements state that the local authorities and the community committees are responsible for ensuring that there is no involuntary land acquisition in the targeted sub-project areas. In case any claims of ownership arise during the implementation, these entities are responsible for resolving the disputes. This procedure is conducted during the identification phase of the intervention to verify the baseline survey and to ensure that no involuntary land acquisition occurs. As a result, the agreement serves as a guarantee from community and local authority that the intervention will not require physical or economical resettlement and land acquisition.

4. Environmental, Social, and Occupational Health and Safety Action Plan

4.1. Environmental Impact Mitigation Measures

Table 7 Environmental and Social Impact and Mitigation Measures

Project phase	Potential Impact Factor	Mitigation Measure	Personnel / Institution Responsible For Execution
Implementation	No latrines near the project site and workers may have to practice open defecation	- Providing temporary latrines, hand-washing basins, and supplying them with water and connected them to existing sewage network. - In the work end the latrine will be decommissioning. Any residual waste will be transport and disposal of in designated area by local authority. - In case the presence of women workers, ensure latrines are separated by gender and with the same facilities and capable of being locked from inside. - Ensure proper housekeeping of latrines. - Managing and supplying water and soap in the latrine daily.	- Contractor - Technician resident engineer
	Air pollution due to dust from activities and emissions risk (i.e., CO, NOX, SOX, etc.) from machinery	- controlled emissions through regular maintenance of the trucks. - Ensure turning off vehicles and machineries when not in used to reduce NOx and CO and PM emissions from machineries and vehicles used. - Spray water to prevent dust. Water sprayed should be done efficiently to avoid wasting water. Water spraying can be carried out by using greywater or seawater. - Use dust sweeping methods to avoid wasting water in dust suppression. - Properly cover waste during transportation - Exposed soil and material stockpiles must be protected against wind erosion and the location of stockpiles shall take into consideration the prevailing wind direction.	- Contractor - Technician resident engineer
	Soil, and surface water contamination from accidental oil and fuel spills.	- Ensure oil and fuel change, machine maintenance, washing of machinery is done at designated insulated areas away from the soil, water areas, and drains. - Ensure latrines and their collection systems are well maintained and located away from the sea zone. - Carry out machine maintenance and oil and fuel change at service centres if present. - Only use well maintained equipment to avoid potential leaks. - Ensure the presence of spill prevention kits. - Remove spills immediately by trained workers and dispose according to manufacturer's guidelines and materials safety data sheet (MSDS)	- Contractor - Technician resident engineer

	Ambient noise risks during installation and excavation work	- Schedule excavation and installation activities during times when nearby residents are least likely to be affected during daylight hours. - Noise levels in activities will not exceed high noise limits ”80 dB for 8 working hours”, and exposure hours will be limited. - Machinery must be maintained regularly to avoid exceeding noise emissions from poorly maintained machines. - Limit vehicle speed at critical locations. - Ensure using well maintained machineries and equipment	- Contractor - Technician resident engineer -
	Lack of waste management such as Solid waste produced by workers	- Split wastes by type (solid waste- hazardous waste) - Properly store, handle and dispose all types of waste and hazardous chemicals if any in insulated areas according to their Material Safety Data Sheets (MSDSs).all construction waste will be properly stored and removed to designated areas that agreed with local authority. - Ensure that workers collect all solid trash in well insulated bags and transport them to the designated landfill or dispose of it in a proper way that does not impact the environment in coordination with local authority. - Burning waste will not be allowed. - Raise awareness of workers on environmental safety measures and hazardous materials and waste management measures. - Use the excavated soil for backfilling.	- Contractor - Technician resident engineer
Operation and Maintenance	Soil contamination and gases emission from diesel leaks from the generator or chemical storage area. Fire risks from generator	- Implement safe fuel handling practices, such as using approved containers for fuel storage, avoiding overfilling fuel tanks, and ensuring proper fuel transfer procedures are followed. - Ensure the presence of spill prevention kit and remove spills immediately by trained workers. Dispose spills according to MSDS. - Ensure that the generator is placed in a well-ventilated area, to disperse the gaseous emissions and reduces the concentration of fumes around the generator. - Ensure the presence of fire extinguishers - Ensure presence of fire signs with details on how to use extinguishers - Train facility workers on using fire extinguishers and how to react in case of fire. - The telephone number of firefighting units must be present on the emergency board. Carry regular fire drills - Follow maintenance schedule for the generator to ensure proper functioning and minimize the risk of leaks - Regularly inspect the fuel lines, connections, and tanks for any signs of damage or leakage. Address any issues promptly to prevent further damage or contamination. - Implement secondary containment measures to capture and contain any fuel leaks or spills. This can include using containment trays around the generator and fuel storage area to prevent fuel from reaching the soil. - Provide training to employees and personnel involved in generator operation and fuel handling on safe practices, spill response procedures, and environmental risks. Promote awareness of the importance of preventing and addressing fuel leaks and emissions.	- Community Committee - Beneficiaries

	High use of water	- Using water-efficient appliances and equipment - Reusing grey water from sinks, showers, and other sources for flushing toilets and irrigation of treated. - Installing water meters to monitor water usage and carry ongoing monitoring for water quality to ensure it is safe to use - Raise awareness staff on ways to conserve water	- GAF - Community committee, - Local Authority - Fish Association
	Environmental pollution risks during maintenance (Solid wastes, hazardous wastes, soil contamination, dust, and ambient noise emissions)	- Follow similar measures to risks present during construction phase	- Community Committee - Beneficiaries

4.2. Social Impact Mitigation Measures:

Table 8 Environmental and Social Impact and Mitigation Measures

Project phase	Potential Impact Factor	Mitigation Measure	Personnel / Institution Responsible For Execution
Implementation	Child labor/forced labor risk Children may be induced by their families to work due to the high level of poverty	- Ensure child labor is not permitted; all workers will be verified to be 18 years old and above as per ESS2 - Avoid buying raw material from suppliers that employ children through checking the requirements and policies of the primary supplier, reviewing labor conditions and labor log of the primary supplier and communicating the requirements of PWP and UNDP regarding child labor to the supplier. - Ensure the contractor looks for a different supplier who meets the requirement if current supplier fails to meet the requirements. - Verifying age by checking IDs and other available documents. - Ensure a Labour Log is available, and all workers are registered. - Training of workers on the Codes of Conduct. All workers to sign Codes of Conduct.	- Contractor - Community Committee - Technician Resident Engineer (TRE)
	Sexual harassment, sexual exploitation and abuse, Inaccessibility of the grievance mechanism (GM) including a GM to address SEA/SH	- Mandatory and repeated training and awareness-raising for the workforce about refraining from unacceptable conduct toward local community members, specifically women. - Informing workers about national laws that make sexual harassment, sexual exploitation and abuse a punishable offense that is prosecuted. - Raise awareness of the GM system and how it can be access and used to report any SEA/SH cases - All workers fully understand and sign the CoC and to adhere to it.	- Contractor - Technician Resident Engineer - Community Committee - Gender Coordinator
	Discrimination against women, the elderly, youth, the poor when selecting beneficiaries	- PWP adopts a non-discrimination policy that ensures a non-discriminatory and inclusive manner, including women and persons with disabilities when selecting subprojects. The policy also ensures the inclusion of women in community committees is 50% according to communities' acceptance. - Provides opportunities for women and other vulnerable groups to be consulted in a place and time convenient to them and which allows them to freely express their views	- PWP - Gender Coordinator
Implementation	Lack of workers' awareness and knowledge on respecting local community cultures, and social risks relating to SEA/SH.	- Implement a systematic awareness campaign to increase workers' awareness of local community tradition and cultures and the need to respect them. - Contactor and its workers to sign the Code of Conduct (COC) and receive regular training on the same. - Ensure workers respect and adherence to the Code of Conduct CoC for the local community's protection and do no harm. They will be trained on the CoC before each worker signs it. - Ensure GM system in place to handle any issues related to SEA/SH.	- Contractor - TRE - Community Committee - Gender Coordinator - GM Officer

Project phase	Potential Impact Factor	Mitigation Measure	Personnel / Institution Responsible For Execution
	Financial exploitation, harassment and intimidation of community or beneficiaries	- Inform the beneficiaries that the subproject is provided for free, and they should not pay anyone to get benefits of the subproject. - Prepare and publicize in the community a transparent recruitment procedures. - Ensure the GM is operational and community/beneficiaries receive regular training on how to use it and of its existence so they feel comfortable using it. - Raise awareness among PWP Technician resident engineer that there is zero-tolerance for any cases of financial exploitation. - Raise the awareness of the community committee, workers, and communities on the GM system and how it can be used to report any financial exploitation. - Inform consultants, resident engineers, and the community about PWP regulations that make financial exploitation a serious contravention.	- Technician Resident Engineer - Community Committee - GM Officer
	Workers' dissatisfaction with the working conditions, delays in receiving pay, and lack of workers grievance mechanism	- PWP ensuring that GM established in the site. - Inform the workers about GM contact information and the method of submitting complaints. - Details of complaints received should be addressed promptly incorporated into the audits as part of the monitoring process.	- GM Officer - Safeguard Officer
	Weak implementation of consultation requirements as per the Stakeholder Engagement Plan and GM monitoring and awareness; timely and effective resolution of grievances	- Awareness rise the PWP's staff how to make effective consultations with stakeholders to facilitate information exchange between each other. - Continued coordination with local authorities and effected people. - Review reports related to GM and awareness sessions regularly to know weak and strength points.	- - Safeguard Officer GM officer
	Absence of transparent recruitment procedures for labor requirements at the community level	- Coordination with the community council regarding the employment of skilled and unskilled workers from the community benefiting from the subproject as a priority and in a transparent manner. In the event that skilled workers are not available, they can be provided from neighboring areas. - Prepare and publicize in the community a transparent recruitment procedure. - Ensure the GM is operational and community/beneficiaries receive regular training on how to use it and of its existence so they feel comfortable using it.	- Safeguard Officer GM officer
	Noise and vibration due to project activities and workers' activities and working at night	- Noise levels in activities will not exceed high noise limits "80 dB for 8 working hours", and exposure hours will be limited. - All construction and installation works are to be conducted during day light and no work to done at night	- Technician resident engineer - Community Committee. - Contractor

Project phase	Potential Impact Factor	Mitigation Measure	Personnel / Institution Responsible For Execution
	Community health and safety during the work	- Install fences, barriers, dangerous warning/prohibition sites around the construction area which show potential danger to public people. . - Place appropriate warning and directional signs at areas where construction is taking place. - Implement regular inspection by site guard - Keep site surfaces clear from materials such as soil and equipment. - Awareness of the public about risks and hazards at the project construction areas before the commencement on site. - Ensure all types of wastes are removed appropriately	- Technician resident engineer - Community Committee. - Contractor
Operating and Maintenance	Lack of maintenance and disfunction of PV system	- The community committee, contractor, and beneficiaries are committed to maintaining and monitoring of the Plant, and monthly data analysis and reporting. - Provide technician and safety training for the facility staff on all operational and maintenance aspects for the Plant. - Sign an agreement with local authorities and communities' committees to ensure subproject maintenance and sustainability of the project. - Inform the beneficiaries about maintenance periods and times beforehand. - Clean solar panels by mopping and saving water using rubber-bladed water sprinklers with a very small amount of water to conserve water.	- Community Committee. - Contractor - Beneficiaries
	Complaints during operation/community satisfaction	- GM should be established by the community committee, and PWP. - Inform the public about GM contact information and method of submitting complaints. - Details of complaints received should be incorporated into the audits as part of the monitoring process. - Respond to and settle the complaint quickly and accordingly.	- Community committee

4.3. Occupational Health and Safety Mitigation Measures:

Table 9 Occupational and Health Safety Impact and Mitigation Measures

Task	Hazard	Risk degree			Risk Mitigation Measures	Residual Risk			Responsible
		L	M	H		L	M	H	
General Requirements **(OHS general actions for all activities of the sub-project)**	- (General): Conduct comprehensive training about occupational and health safety (OHS) aspects before the beginning of the sub-project implementation by PWP this includes (hazards associated with the activities, mitigation measures, and workers' responsibility as well as disciplinary action against any violation. - (General): Weekly repeated awareness sessions on OHS hazards associated with the activities, mitigation measures, and workers' responsibility as well as the disciplinary action against any violation. - Conduct daily toolbox talks for workers. - Prepare a Permit to Work (PTW[14]) for the activities of the moderate and high-risk. - (General): Ensure control of the risk on the site to protect workers from hazards and risks. - (General): Workers sign that they have received awareness about the implementation of the activity, and that they understood risk assessments that help mitigate, minimize, and avoid potential risks. - (General): Ensure the necessary personal protective equipment (PPE) is always worn by workers and they get it for free. - (General): Involving the community committee in the monitoring of safety procedures and reporting any risks. - (General): Emergency response plan to be in place with details of the nearest hospital or medical center, responsibilities are understood for all works, first aid boxes are available and a list of trained first aiders is posted and known by all workers. - (General): If there are activities at height take place, provide safety ropes for workers and fall protection devices. - (General): Ensure contractor covers all workers with life and health insurance. - Ensure effective monitoring of the worksites including inspections and spot checks to ascertain compliance with OHS measures. - Conduct regular inspections for any unsafe acts, near misses, or accidents. - Discover the root causes of any non-compliance cases or/and accidents occurring and suggest corrective actions to avoid reoccurring. - Ensure no work is conducted during bad weather conditions (i.e., sand storms, dust storms, rainy seasons, etc.) - In case scaffolds are used, inspect their stability and be well installed by a competent person prior to using them, and ensure guiderails and harnesses provided. - Ensure workers are trained on handling cement and are aware of its health hazards. Additionally, ensure that workers handle and store and dispose cement according to its MSDS.								Contractor/ Technician resident engineer/ safeguard Assistant

[14] Permit to work system is a formal documented system used in PWP subprojects to control any risk within work activities to ensure safe execution of work onsite

	- Using gunpowder is prohibited in all activities and interventions. - Ensure proper speed limit and driving safety measures are adhered to including wearing seatbelts during transferring equipment and materials to and from the project site. - Ensure providing latrines equipped with soap and water and resting areas for workers. - Allow resting breaks in shaded areas and provide workers with enough water. - Ensure skilled workers are hired for high-risk activities. - Report any major injuries to the WB within 48 hours by UNDP.								
Excavation and site preparation Works	• Dust, sand, and small parts volatilize while excavating in soil. • Exposure to the hot sun during work causes headaches and fainting. • Injuries due to using a defective tool. • Injuries due to misuse of equipment necessary for excavation or removal of excavation waste. • Exposure to generated noise from equipment. • Falling, Slipping, tripping from bad site arrangements		x		• Ensure the necessary personal protective equipment (PPE) is provided for workers including dust masks and ear mufflers and safety boots. • Install barricades and signs around site preparation zone. • Ensure workers are wearing ear mufflers when conducting noisy activities and masks and goggles to protect them against dust emissions. • Regular breaks to workers to reduce the sun's impact and provide drinking water. • Ensure high risk activities are done by skilled workers. • Ensure no work is conducted during bad weather conditions (i.e., sandstorms, dust storms, rainy seasons, etc.) • Maintain the excavation equipment before starting the work to ensure it is in good condition and safe to work. • Collecting and transporting the excavation residues to the landfills allocated by local authorities. • Conduct additional inspection for excavation and site preparation works before starting the work to observe the worksite, ensure the safety procedures are in place, and approved permit to work has been obtained. • Inspect the tool before use and never use tools with obvious signs of damage. • Ensure good housekeeping and site arrangement practices are followed. • Ensure that works residues are collected and transported to designated landfills.	x			Contractor/ Technician resident engineer/ safeguard Assistant
electrical hazards	• Injuries due to electric shock. • Injuries due to using a defective tool.		x		• Inspect existing facility and apply all safety measures to prevent the risk of any injury to the workers by electricity shock during installation.	x			Contractor/ Technicia

					• Carefully design using appropriate technologies to minimize hazards. • Build security fences around electricity areas to provide a secure area. • Electricians must be well trained and provided with insulated PPE and appropriate work tools, and must be familiar with electrical hazards and techniques to avoid them. • Avoid working during rainy times or near wet areas. • Install danger signage in the electrical hazard areas and apply all safety measures to prevent exposures. • Inspect the tool before use and never use tools with obvious signs of damage.				n resident engineer/ safeguard Assistant
Working at Height	• Fall of workers from ladders, scaffolds, rooftops, platforms, etc. • Failure of ladders, scaffolds or other access equipment. • Fall of tools, equipment or materials from above and strike workers below		x		• Ensure that the roof is well protected by a proper parapet without openings and enough clean space. • Ensure proper use of ladders or scaffolds by trained workers and inspected, tested regularly by competent inspectors, use of fall prevention devices, including safety belt and lanyard to prevent access to fall hazard area, or fall protection devices such as full body harnesses and head helmet used in conjunction with shock absorbing lanyards and always wear head helmets while working at height. • Do not move ladders when workers are standing on them and inspect ladders before using to ensure they are properly fixed • Installation of guardrails with mid-rails and toe boards at the edge of any fall hazard area • Secure loose tools and equipment to prevent them from falling • Work should be stopped immediately if weather conditions become hazardous. • Take breaks often to rest and to avoid fatigue and provide potable drinking water.	x			Contractor/ Technician resident engineer/
Lifting Operations	• Injuries of workers from falling/suspended loads and movement through blind areas. • Crushing objects. • Noise/vibration injuries		x		• Close the lifting area with fence to prevent access during lifting work. • Install warning signs for lifting activities Prevent accessibility to non-workers at lifting zones or any construction zone	x			Contractor/ Technicia

	• --- Risks of blind areas •				• Carry out lifting work by well trained, qualified, and certified lifting team and with proper communication means and flag Man. • Provide workers with all necessary Personal Protective Equipment PPEs and safety materials • Use well-maintained equipment for lifting that is appropriate for the weight; well checked and tested. • Ensure workers are standing within a safe distance from the lifting zone • Secure loads when lifting and use strong and reliable fixation materials to make sure that the load is well tightened, and no solid parts fall from the load during lifting • Ensure workers and any person is standing at a safe distance from the lifting area • .				n resident engineer/
Manual Handling	• Risk of heavy, Bulky, or unwieldy load. • Risk of unstable/unpredictable loads. • Risk of PPE clothing hindering the movement or posture. • Risk of poor communication on safety between workers. • Risk of workers' back injuries due to wrong manual handling. • Handling chemicals (i.e., cement) causing skin and eye irritation.		x		• Avoid the need for unnecessary manual handling as possible when suitable equipment is present. • Reduce the load risk by using lighter weights or more stable containers. • Reorganize the activity to further reduce the impact on the individual(s). • Utilize mechanical lifting aids or equipment as appropriate. • Ensure appropriate rest breaks and hourly work shifts are involved. • Provide personal protective equipment (e.g., gloves, foot protection, and non-slip footwear). • Provide training for workers on handling and storing any hazardous substances and materials and training on MSDSs and provide PPEs including gloves to workers handling cement. • Raise awareness to workers on proper posture and lifting techniques to avoid back and muscle injuries	x			Contractor / Resident Engineer/ safeguard Assistant
Transport of equipment	• Traffic accidents during transportation of the needed materials and equipment		x		• Ensure drivers are aware of good driving practices such as wearing seat belts and maintaining speed limit. • Ensure drivers have formal licenses to drive this type of	x			Contractor / Resident Engineer/

and materials					trucks. • Avoiding or minimizing transportation through night hours. • Machinery must be maintained regularly to avoid traffic accidents. • Limit vehicle speed at critical locations (Limits of 10, 15 or 20 mph may be appropriate depending on the vehicles used, site layout and hazards). •				safeguard Assistant
Operation and Maintenance Phase	• Occupational health and safety risks are similar to those in the section above on occupational health and safety during the construction phase		x		• Ensure that the same relevant mitigation measures from the previous OHS impacts will be applied during the operation and maintenance phase.	x			Local Council/CC

4.4. Required Resources[15]

A wide experience in terms of contracting and technician works among the executive staff (contractors, supervisors, and E&S safeguard field assistants) who receive training courses and awareness tools and materials. However, they tend to have less capacity in terms of environmental, occupational health and safety, and social requirements in accordance with WB operational policies. Accordingly, and to expand the knowledge of safeguard applicable in PWP subprojects, the following training programs are recommended for the designated staff and the technician resident engineer to build their capacity for managing the project:

Table 10 Recommended Training Courses for designated staff and technician resident engineer

Training course/Awareness Tools and materials	Type of training/Activity	Targeted and Participating parties	Proposed Scheduling	Budget in US$
Environmental, social, OHS, and SEA/SH	Classroom	Contractor/ Technician resident engineer	Prior to project implementation	2000
Environmental, social, OHS, and SEA/SH, and GM and monitoring	Awareness on site	Community committee and workers	Prior to project implementation	2500
Maintenance training for the community and community committee to periodically inspect the interventions during operation to avoid unexpected damages and impacts in the future	Awareness on site	community and community committee	During implementation	2500
Monitoring implementation ESF	Field visit	Safeguards team from HQ and Branches	During implementation	1000
ESF posters and Complaints boxes	Providing materials	All site	Before starting the work	300
Environmental impact mitigation and safety tools	Providing materials	All workers and the supervision team	Before starting the work	15,400
First Aid Kits	Providing materials	All workers	Before starting the work	300

[15] Technical resident engineer will be responsible to select the community workers.

Provision of Temporary latrines	1 latrine	All workers	Before starting the work	mentioned in BoQs
Total				**24,000**

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Table 11 Skilled labor and non-skilled labor[16]

Governorate	Subproject-ID	Workers Type	Un skilled Workers			Skilled Workers[17]	Project Supervisor	Technician Resident Engineer	Total Workers	Implementation Period/ Months
			M	F	IDP					
Aden	02-9-16074	Contract worker	106	20	0	80	1	1	208	6

5. Implementation Arrangements:

5.1. Monitoring Arrangements (who, what, when, and how)

The implementation of the mitigation measures will be monitored through daily checks by the technician resident engineers, monthly by the safeguards as well as the visits by PWP subareas managers and the regular TPM and UNDP field monitoring visits. The following aspects will be monitored (though the list will keep being updated to accommodate any emerging issues or updated aspects that may be recommended by the monitoring reports):

[16] contractor will hire workers from the local community. If needed, some of the skilled workers will be hired from neighboring areas in which they could go back to their areas. Therefore, no accommodation will be required. The estimated working days in the sub-project are 110 working days, with 5 working days per week and 8 hours of work per day.

[17] The technical resident engineer is responsible to recruit them.

Table 12 Environmental and Social Monitoring Plan

Mitigation Measure	Indicator	Implementation Route/Plan	Method	Institutional Responsibility[18]	Monitoring Responsibility	Timeframe[19]
Environmental Impacts						
Latrines for workers are present, with soap and water, and their cleanliness and maintenance has been ensured	• Percentage of toilets that are working properly. • Percentage of workers who are satisfied • Presence of pests and flies • Presence of soap and water in latrines	ESAP	• Visual inspections • Worker surveys.	• Contractor • Technician resident engineer	• Safeguard officer • Community committee	Daily
Ensure air quality and reduce the generation of dust, and volatile particles	• Visual observations and presence of dust cloud • Number of society complaints on the air quality, noise level or waste at work site	ESAP	• Visual inspections of dust and particles generating activities. • Emissions inspections • Complaints records	• Contractor • Technician resident engineer	• Safeguard officer • Community committee	Weekly

[18] The indicators are shared between the responsible agencies, some of them are the responsible for implementing the action and others are responsible for monitoring the actions' implementation according to the level of the position.

[19] Time frame varies by task.

Mitigation Measure	Indicator	Implementation Route/Plan	Method	Institutional Responsibility[18]	Monitoring Responsibility	Timeframe[19]
Reducing the risk of ambient noise during installation and excavation work	• Equipment assessments results • Number of Community complaints. • Number of maintenance performed on equipment. • Number of complaints from workers on equipment and tools efficiencies	ESAP	• Noise level and vibration readings. • Equipment maintenance records • Community complaints on noise and vibrations.	• Contractor • Technician resident engineer	• Safeguard officer • Community committee	Weekly
Reducing or preventing any soil pollution from oil spills.	• Visible presence of leakage • Visible change in soil color • Temporary latrines are located away from water zones and runoffs	ESAP	• Visual inspections •	• Contractor • Technician resident engineer	• Safeguard officer • Community committee	Daily
Waste accumulation of construction	• Presence of construction wastes at undesignated area. • Number of complaints received related to waste management. • Presence of waste receipt	ESAP	• Visual inspections • Complaints about waste. • Waste receipt	• Contractor • Technician resident engineer	• Safeguard officer • Community committee	Weekly
Social and Community Impacts						

Mitigation Measure	Indicator	Implementation Route/Plan	Method	Institutional Responsibility[18]	Monitoring Responsibility	Timeframe[19]
No child labor is permitted, and workers must be 18 years or older.	• Completeness of records. • Age verification from the IDs • Documentation reviews. • Number of CoC signed by all project workers • Number of training organized for all project workers	- ESAP -ESMF	• Daily Visual inspection and ID checkups • Worker interviews. Checking employment documents for suppliers.	• Technician resident engineer Contractor	• Safeguard officer. Community committee	Daily
Combating sexual exploitation and abuse, sexual harassment and discrimination during project implementation. Ensuring that the contractor considers gender equality during the implementation of the project through the work of facilities designated for women	• Number and types of disciplinary actions applied for policy violations. • Number and types of complaints reported through GM. • Per centage of complaints that have been satisfactorily addressed • Satisfaction of female workers	- ESAP	• Policy against SH, abuse and discrimination. • Anonymous GM • Routine facility checks. • Worker feedback.	• Technician resident engineer • Contractor • Gender coordinator	• Safeguard officer Community committee	• Monthly
Ensure non-discrimination and inclusion of women and persons with disabilities when selecting beneficiaries.	• Monitor the percentage of women beneficiaries compared to men. • Monitor the percentage of disable beneficiaries.	- ESAP	• Checking gender-disaggregated data. • Checking data of beneficiaries with disabilities.	• Social mobilized team	• Branch manager • Safeguard officer • Gender coordinator	• Design phase • During the implementation

Mitigation Measure	Indicator	Implementation Route/Plan	Method	Institutional Responsibility[18]	Monitoring Responsibility	Timeframe[19]
Ensure that the beneficiaries or the community is not financially exploited.	• Number of beneficiaries who know that project provided free of charge. • Number and types of complaints reported through GM.	ESAP	• Beneficiaries are informed clearly and repeatedly. • Anti-corruption policy. • GM system. • Random beneficiary surveys	• Technician resident engineer • Contractor	• Safeguard officer • Branch manager • Community committee •	• Monthly
Lack of workers' awareness and knowledge on respecting local community cultures, and risks relating to SEA/SH	• Number of awareness sessions provided. • Number and types of complaints reported	ESAP	• Awareness records. • Community complaints.	• Technician resident engineer • Contractor	• Safeguard officer • Branch manager • Community committee •	• Monthly
Reducing the suffering of the community from noise, vibration, or dust pollution as a result of project activities and workers' activities	• Noise, vibration, and air quality level • Satisfaction of the community. • Number of society complaints on noise and vibrations.	ESAP	• Regular noise, vibration, and air quality monitoring • Interviews to understand their perceptions of noise, vibration, and dust pollution. • Complaints records	• Technician resident engineer • Contractor	• Safeguard officer • Community committee	• Weekly
Community health and safety during Implementation.	• Number of recorded complaints • Number of reported incidents	ESAP	• Visual inspection. • GM system.	• Technician resident engineer • Contractor	• Safeguard officer • Branch manager • Community committee •	• Daily

Mitigation Measure	Indicator	Implementation Route/Plan	Method	Institutional Responsibility[18]	Monitoring Responsibility	Timeframe[19]
Occupational health and safety						
Adherence of contractor to permit to work system for activities	• Check PTW are correctly filled out, signed. • Check if permits are visibly displayed at the work site. • Number of Permit	ESAP	• Monitor the issuance and completion of PTW. • Regular site inspections.	• Technician resident engineer • Contractor	• Safeguard officer • Community committee • safeguard Assistant	• Daily
Regular awareness sessions on OHS hazards associated with the activities, mitigation measures, and workers' responsibility as well as the disciplinary action against any violation.	• Number of workers attending the OHS training/awareness from records and details on awareness sessions	ESAP	• Records of attendance at OHS awareness. • Regular observations and inspections in the workplace.	• Technician resident engineer • Contractor	• Safeguard officer • Community committee • safeguard Assistant	• Weekly
Ensure the necessary personal protective equipment (PPE) is always worn by workers and they get it for free	• Workers are receiving the necessary PPE. • Number of workers who have the appropriate PPE and wearing them • • Number of incidents and causes	ESAP	• Records of PPE distribution. • Regular inspections or observations. • Monitor incident and near-miss reports	• Technician resident engineer • Contractor	• Safeguard officer • Community committee • safeguard Assistant	• Daily

Mitigation Measure	Indicator	Implementation Route/Plan	Method	Institutional Responsibility[18]	Monitoring Responsibility	Timeframe[19]
An emergency response plan with details of the nearest hospital or medical center are in place and responsibilities are understood by all workers. First aid boxes are available and a list of trained First aiders is posted and known by all workers.	• Emergency plan banner in the site photo • Results of inspect and test • Low number of actual emergencies • Presence of first aid boxes and their numbers. • Number of first aiders present. • Details of nearest hospital posted and available.	ESAP	• Have a formal written emergency response plan • Routinely inspect and test the plan and first aid kits. • Visual inspection.	• Technician resident engineer • Contractor	• Safeguard officer • Community committee • safeguard Assistant	• Daily
Involve the community committee in the monitoring of safety procedures and reporting any risks	• Regular meetings and inspections with the community • Number of risks/hazards identified by community committee	ESAP	• Conduct joint inspections • Respond to issues raised •	• Technician resident engineer • Contractor	• Safeguard officer • Community committee • safeguard Assistant	• Weekly
Sign board with GM contact details in place	• Number of Sign boards with visible Signboards with GM contact details • Number of grievances complaints received and solved .	GM Mechanism	• Visual inspection. • Grievance reports.	• safeguard officer • Technician resident engineer • GM Officer	• Safeguard officer • Community committee • safeguard Assistant	• Within one week before the commencement of work • And weekly for grievance inspections

Mitigation Measure	Indicator	Implementation Route/Plan	Method	Institutional Responsibility[18]	Monitoring Responsibility	Timeframe[19]
All accidents and incidents are reported to head office within 24 hours and communicated to UNDP and within 48 hours to the WB	• Number of incidents reported to head offices within 24 hours and to the WB within 48 hours • Number of incidents reported late	Health & safety procedure ESAP	• incident records	• Technician resident engineer • Contractor • GM officer	• Safeguard officer • Community committee • safeguard Assistant • UNDP	• within 24 hours (UNDP) and 48 hours to WB
Working at Height Activities and fall risks	• Recorded number of injuries from height activities and near misses • Presence of guardrails and barriers	ESAP	• Visual inspection	• Technician resident engineer • Contractor	• Safeguard officer • Community committee • safeguard Assistant	• Daily
Lifting Operations	• Recorded number of lifting accidents and near misses	ESAP	• Visual inspection to ensure that all lifting activities in the work site are executed safely and as per the standard lifting safety rules.	• Technician resident engineer • Contractor	• Safeguard officer • Community committee • safeguard Assistant	• Daily
Electrical hazards	• Records and number of workers not adhering to suitable PPEs • Unqualified workers performing electric work	ESAP	• Visual inspection to Ensure that all electricity safety rules are implemented, followed, and communicated	• Technician resident engineer • Contractor	• Safeguard officer • Community committee • safeguard Assistant	• Daily
Injuries to workers and workers dissatisfaction	• Number of Grievances and number of solved Grievances • Number of injured workers • Number of accidents • Number of workers adhering to PPEs and safety measures	ESAP	• Visual inspection. • Workers logs • Incident records • GM records	• Technician Resident engineer • Contractor	• Safeguard officer • Community committee • safeguard Assistant	• Daily

Mitigation Measure	Indicator	Implementation Route/Plan	Method	Institutional Responsibility[18]	Monitoring Responsibility	Timeframe[19]
Accidents while transporting materials and equipment	• Number of road accidents and causes of accidents • Presence of flagman for site arrangement • Presence of warning signs to warn road users/vehicles of the work ahead	ESAP	• Accident reports.	• Technician Resident engineer • Contractor	• Safeguard officer • Community committee • safeguard Assistant	• During transporting process
Operational phase monitoring						
maintenance and disfunction of PV system	• Number of grievances related to misfunctions of PV. • Number of maintenance performed • Number of times the hybrid system stopped working • Number of OHS, environment and social trainings received by the Local Authority for maintenance work and details of training	ESAP	• Visual inspection. • GM system	• Beneficiaries • Community committee	• Contractor	• Monthly
High use of water	• Water usage data from meters. • Volume of greywater captured and reused • Number of awareness sessions related to water conservation measures provided to local communities	ESAP	Install water meters to track usage. Develop reuse systems.	• Comm unity Committee • Local Authority	• GAF	• Three Month

Mitigation Measure	Indicator	Implementation Route/Plan	Method	Institutional Responsibility[18]	Monitoring Responsibility	Timeframe[19]
Soil contamination and gases emission from diesel leaks from the generator or chemical storage area	• Change in soil color from fuel spills.	ESAP	• Visual inspection	• Beneficiaries • Community committee	• Contractor •	• Monthly
Weakness of the GM to adequately address grievances	• Number of complaints recorded. • Number of complaints addressed.	ESAP	• GM system	• Beneficiaries • Community committee •	• Local Council	• Six months

6. Stakeholders Engagement Plan and Public Consultation[20]:

Stakeholder engagement has been conducted and all parties that will be targeted in this intervention have been involved by interviews and meetings with fishermen, center management, and personalities from the community, which included (General Fish Authority Manager, Local Council Manager, Responsible for the Fish Landing Center, Administrator at the Fish Landing Center, Project Manager of Works in the Region, fisherman, and Social Worker). This engagement process has included a discussion of community needs, making decisions on key priorities, and developing the sub-project designs and plans. Public consultations have been conducted by PWP social consultants' team (male and female) to inform the stakeholders of the activities that will take place and get feedback.

Table 13 Summary of Consultation

Summary of Consultation for [Stakeholder Dockyard Center]		
Date of consultation	16 and 17July, 2023	
Location of consultation	In Dockyard Center Al-Mala'a, Aden	
Total Number of participants (# of women / # of men)	Total 42 Men 32 Women 10	
Have measures been taken to ensure the inclusion of vulnerable people (e.g. the elderly, people with reduced mobility, people with special needs, illiterate people, women,	The elderly and women were included in the consultations regarding their needs, and women were involved in the community committee.	
Main issues/ identified risks/concerns/questions/complaints (specify if male or female)	**Answers from the project team**	**Follow-up actions (who is responsible and by when)**
• Fishermen inquire about the components of the project that will contribute to alleviating their suffering (male)	• The project comprises a fish cooling and storage container with a capacity of 5 tons and 10 tons ice factory	• PWP / UNDP
• The fishermen inquired about how to operate this project given the high fuel costs and frequent power outages. (male)	• The project will be operated using hybrid solar diesel systems, which mainly consist of a single diesel generator, photovoltaic panels which maximize solar power production and minimize fuel consumption.	• Contractor/ Community Committee/ Beneficiaries
• A member of the community committee and an engineer at Dockyard Center explained the center's lack of electricity generation through the government electricity grid and inability to rely on it. He proposed	• These notes will be taken into consideration during the design and determination of the project components. The government electricity network will not be relied upon. A feasibility study will be conducted in the event of an electric generator, the availability of fuel	• PWP/ UNDP

[20] To see public consultation documentation and photo please Click here

generating electricity through solar power. (male) • The beneficiaries feared the length of the project implementation. (male) • Can women participate in implementing the project? (female)	needed to operate it, and whether PV energy has been added. • The nature of the project is supply and installation, and there are no major civil activities that will increase the project implementation period. The project is expected to be completed in six months. • Women can participate by participating in community committees elected by the beneficiaries, monitoring project activities, and also following up on the maintenance and operation of the project.	• Technician Resident Engineer/ Contactor. • Gender Coordinator.

6.1. Consultation to Be Carried out During Subproject Implementation (What, When, Who, and How):

PWP will continue engaging the stakeholders during the subproject's implementation by conducting meetings with beneficiaries, community committees, and local authorities to discuss any raised issues, and implementation aspects, as well as listen to stakeholders' concerns and feedback. The safeguard officer will conduct monthly meetings with community committees during the implementation processes to coordinate and agree with them on implementation phases and safeguard issues, conducting awareness and training regarding safeguard requirements and their monitoring roles. Also, technician resident engineers will be in continuous cooperation and coordination with community committees at the sites, and ongoing meetings when needed will be conducted. The timely application of stakeholder engagement activities that will be conducted during the implementation of ESAP is critical to support the project risk management process. The SEP was developed for the parent project[21].

7. Grievance Mechanism [22]:

7.1. Channels where complaints can be raised and received (hotline, complaint box, and face-to-face, written and oral, etc.)

Many channels have been put in place to facilitate receiving complaints and feedback. Complaint boxes are placed in the subproject sites with posters on all other channels available. These boxes are opened in a formal meeting under the supervision of the local community committee on a bi-weekly basis.

Other communication means are also introduced to beneficiaries and listed below.

- Complaints box at the subproject location which is open every two weeks.

[21] For more information about SEP please see link: https://pwpyemen.org/index.php/en/media-center-en/publications/category/14-sustainable-fishery-development-in-red-sea-and-gulf-of-aden-sfish

[22] For more information please click link https://docs.google.com/document/d/1vTBW8w_kbC7pwpBWdVLeI3KESOOd3-MaOjvxrxgoqLs/edit

- Telephone: 8002626
- SMS, Telephone, and WhatsApp no. 775626262
- Face to face by visiting PWP offices

Complaints received through GM channels are registered in the system and treated seriously, regardless of their source. The recipient at the branch office registers and refers complaints to the branch manager for necessary action and follow-up. The branch manager informs HQ and liaises with the gender coordinator to address the complaints. An investigation is carried out with relevant parties, supervised by the branch manager, and coordinated with the gender coordinator. A committee of males and females may be sent to the field to complete the investigation if necessary. The gender coordinator studies the investigation results and develops recommendations for the head of the safeguarding unit to settle the cases accordingly. The head of the safeguarding unit raises the case to the executive director, and the managing director makes the final decision and settles the case. This process ensures all complaints are thoroughly investigated and addressed with appropriate action.

Annex 1 – Environmental and Social Checklist:

Table 14 Environmental and Social Checklist

Sub-Project No.	02-9-16074
1: The Natural Environment	Answer (NA/Minor/Moderate /Substantial/High)
1.1 Are there any environmentally sensitive areas or threatened species that could be adversely affected by the subproject (specify below)? Intact natural forests Riverine forest Wetlands (lakes/rivers/seasonally inundated areas) If yes, how far are the nearest wetlands (lakes, rivers, seasonally inundated [flooded] areas)? _____km Habitats of endangered species for which protection is required under Yemeni laws and/or international agreements Others (describe) (e.g. cultural sites, burial places, etc.)	 NA NA NA NA NA
2. Fauna and Flora	
2.1 Will the subproject involve the disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes)?	NA
2.2 Will the subproject lead to the destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development?	NA
2.3 Will the subproject lead to the disruption/destruction of wildlife through interruption of migratory routes, disturbance of wildlife habitats, and noise-related problems?	NA
3.Destruction/Disruption of Land and Vegetation	
3.1 Will the subproject lead to unplanned use of the infrastructure being developed?	NA
3.2 Will the subproject lead to destruction of soils in cleared areas not suited for agriculture?	NA
3.3 Will the subproject lead to the interruption of subsoil and overland drainage patterns (in areas of cuts and fills)?	NA
3.4 Will the subproject lead to landslides, slumps, slips, and other mass movements in soil?	NA
3.5 Will the subproject lead to erosion of lands?	NA
3.6 Will the subproject lead to health hazards and interference of plant growth by the dust raised and blown by vehicles?	NA
4. Protected areas	
4.1 Does subproject occur within/adjacent to any protected areas designated by the government (national park, national reserve, world heritage site, etc.)	NA
4.2 If the subproject is outside of, but close to, any protected area, is it likely to adversely affect the ecology within the protected area (e.g. interference with migration routes of mammals or birds)	NA
4.3 Would this project increase the current impact on the surrounding environment for example by using more water, chemicals, or machinery than previously? If yes HOW	NA
5. Geology and Soils	
5.1 Based on visual inspection or available literature, are there areas of possible geologic or soil instability (erosion-prone, landslide-prone, subsidence-prone)?	NA
5.2 Based upon visual inspection or available literature, are there areas that have risks of in soil salinity?	NA

6 Landscape/aesthetics	
6.1 Is there a possibility that the subproject will adversely affect the aesthetic attractiveness of the local landscape?	NA
7. Historical, archaeological or cultural heritage site	
7.1. Based on available sources, consultation with local authorities, local knowledge, and/or observations, could the subproject alter any historical, archaeological, or cultural heritage site or require excavation nearby?	NA
8. Resettlement and/or Land Acquisition	
8.1 Will the subproject require land acquisition[23]?	NA
8.2 If so, will this land acquisition be involuntary?	NA
8.3 If so, will this involuntary land acquisition lead to relocation or loss of shelter, loss of assets, or access to assets?	NA
8.4 If so, will this involuntary land acquisition lead to loss of income sources or means of livelihood (whether or not affected persons must move to another location)?	NA
8.5 Will the subproject lead to involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of displaced persons?	NA
9. Noise pollution during Construction and Operations	
9.1 Will operating noise level exceeds allowable/ambient noise limits?	Minor
10. Solid or Liquid Wastes, including Medical Waste	
10.1 Will the subproject generate residual wastes (solid or liquid wastes), including medical waste?	Minor
10.2 If "Yes", does the subproject include plan for collection & disposal?	Yes
11. Pesticides, Insecticides, Herbicides or any other Poisonous or Hazardous Chemicals	
11.1 Will the subproject require the use of such chemicals?	Minor
11.2 If, "Yes", does the subproject include plan for safe handling, use & disposal?	Yes
12. Water and Soil Contamination	
12.1 Will the subproject require raw materials/construction materials?	Minor
12.2 Will subproject generate residual wastes, construction material waste, or cause soil erosion?	NA
12.3 Will the subproject result in soil or water contamination (e.g. from oil, grease, and fuel from equipment)?	Minor
12.4 Will the subproject lead to contamination of ground and surface water bodies by herbicides for vegetation control and chemicals for dust control?	NA
12.5 Will the subproject lead to an increase in suspended sediments in streams affected by a road cut erosion, a decline in water quality & increased sedimentation downstream?	NA
12.6 Will subproject lead to the destruction of vegetation and soil in the right-of-way; borrow pits, waste dumps, and equipment yards?	NA
12.7 Will the subproject lead to the creation of stagnant water bodies in borrow pits, quarries, etc., encouraging mosquito breeding and other disease vectors?	NA
12.8 Will this project include the development irrigation scheme?	NA
12.9 Will this project aims at improving an irrigation scheme (without expansion)?	NA
12.10 Will this project change the water quality and quantity in the project area or areas connected to it	NA
12.11 Will this project involve the intensification of production systems that leads to land-use changes (e.g., deforestation), higher nutrient inputs leading to soil or water pollution, changes in water regimes (drainage, irrigation)?	NA

[23] Land Donation

13. Decent Work	
13.1 Will this project affect the current or future employment situation of the rural poor and in particular the labor productivity, employability, labor conditions, and rights at work of self-employed rural producers and other rural workers?	NA
14. Gender	
14.1 Could this project risk overlook existing gender inequalities in access to productive resources, goods, services, markets, decent employment, and decision-making? For example, by not addressing existing discrimination against women and girls, or by not taking into account the different needs of men and women	Minor
15. Community Health, Safety, and Working Conditions	
15.1 Are indigenous peoples present in the Project area (including the Project area of influence)?	NA
15.2 Is it likely that the Project or portions of the Project will be located on lands and territories claimed by indigenous peoples?	NA
15.3 Would the proposed Project potentially affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples?	NA
15.4 Would the Project adversely affect the development priorities of indigenous peoples as defined by them?	NA
15.5 Will this project permanently or temporarily removes people from their homes or means of production/livelihood or restrict their access to their means of livelihood?	NA
15.6 Will the project bring about consolidation or adjustment of tenure rights?	NA
15.7 Would elements of Project construction, operation, or decommissioning pose potential safety risks to local communities?	NA
15.8 Would the Project pose potential risks to community health and safety due to transport, storage, construction?	Minor
15.9 Would the Project pose potential risks to community health and safety due to the use and/or disposal of hazardous or dangerous materials (e.g. explosives, fuel, and other chemicals during construction and operation)?	Minor
15.10 Would failure of structural elements of the Project pose risks to communities? (e.g., the collapse of buildings or infrastructure)?	NA
15.11 Would the Project result health risks (e.g. from water-borne or other vector-borne diseases)?	NA
15.12 Does the Project pose potential risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during Project construction, operation, or decommissioning?	Moderate
15.13 Will the Project activities cause any risks for workers during the construction?	Moderate

Annex 2– Social Agreement Document:

Local Authorities Agreement Aden / 02-9-16074 **/ Al-Mala'a District**	https://docs.google.com/document/d/1vTBW8w_kbC7pwpBWdVLel3KESOOd3-MaOjvxrxgoqLs/edit?usp=sharing